

took some pictures during my last build and thought I'd share them. I hope these help the new builders out there that are *visual learners* like me. I posted these pictures in another thread but thought I'd start a new one since there has been some interest in them.

FYI: I will be updating this posting with more pictures, all the way through the build to completion. There are higher resolution versions of these images in my photo gallery if anyone is interested.



These images are just me preparing to drill the lower rail weld holes. I prefer to drill them prior to bending as there is less chance of damaging the receiver shell in my drill press vice. These lines are to keep the holes in line. The holes are drilled in the shell and will later be welded up to the lower rails, holding them in place. They are just for reference in the drilling process.



These images are of some flats with the rail holes drilled ready to bend. I tried something new and clamped about 5 or 6 flats together and drilled them all at once with a drill press. This saved a lot of time and everything lined up great on them.



These images are of a flat being placed in the DPH jig. It's nice to use and super easy to line up the flat due to pegs which fit tightly into the factory holes of the flat (shown in image #6).



This set of images shows me pressing the flat into a shell. I start at the front and slowly work my way to the rear. It takes several passes.



Okay this last set of images is of the top rails being formed. I prefer to use a brass hammer and tap very lightly. You'll be surprised (or at least I was) with how easily the metal bends. Just work them over until you have nice crisp bends. It takes a while. I've heard you can also use a body hammer like auto body workers use. I'm sure it would do great. I plan to get one and try it if they aren't too expensive.

Here are some more images of the trunion prep.



These are just some images showing the bent shell.



#22 cut the upper rail to accept the rear trunion. #'s 23, 24, 25 show pressing out the barrel pin and barrel.



#26 Barrel has been removed. #'s 27, 28, 29 rivet removal from the front trunion.



Now the rivets are gone. Next, remove the material from the front of the shell to accept the trunion. In image #33 the trunion is test fitted and I passed some long rivets through just to check the hole alignment. Everything is lined up and its time to proceed to further top rail cutting.



Image #34, everything seems to line up with a long rivet passed through the trunion and receiver shell. #35 & #36 clamp the front and rear trunions to the shell to make sure everything will be lined up with the markings I'm about to make on the top rails. **#37 OK, here is where I got a little creative!** I made a jig that allows me to draw the areas that need to be cut onto the rails. It is certainly better than the "**grind, check, grind, check**" method I've used in the past.

- 1) I took a milled receiver (from another project)
- 2) I bought some 90 degree aluminum from Home Depot
- 3) Cut the aluminum to lengths of the rail minus trunion/s
- 4) Cut some clear Lexan (also from Home Depot) and secured it to the angle aluminum. A miter saw will help keep the Lexan straight.



- 5) Mark the rail notches and size on the Lexan and cut the Lexan to make a template
- 6) Place the templates on the newly bent receiver shell
- 7) #39 and #40 Use a fine point permanent marker to mark the newly bent receiver shell for the required cuts
- 8) #40 and #41 Show cutting the top rail using the marks made using the template



In image #42 I have removed the material from the upper rails and am checking them against the jig. In image #43 the bolt carrier is shown riding on the top rails. It should be able to move freely without binding at any point and only able to come off the rails at the rear most point. Image #'s 44 and 45 the trigger group is introduced to ensure the bolt and carrier don't bind on the hammer.



Image #46 shows the lower rail ejector in its original form and the approximate amount of material that needs to be removed for it to work with a 7.62X39 cartridge. I also made a template to assist in shaping the ejector (not pictured). It is my understanding that these rails are sized for the 5.45 guns, but since I have never built one I can't say for sure. Be careful not to cut too far back on the ejector or the weapon will not eject the round properly.

In image #47 we are about to heat treat the

- 1) Ejector and lower rails
- 2) Receiver on both sides of the hammer and trigger pin holes

I use Mapp gas and water to accomplish this. I heat the parts until they lose magnetism. They will most likely be a dullish orange color when this occurs. I then dunk the parts into the water and violently quench them. Many guys use oil for this but I don't so that the oil won't impregnate the metal which can cause problems later when you attempt to paint them.

Now that the parts are hardened it is time to temper them and weld the lower rails in place, image #48. I remove some of the weld to make the receiver outside surface flat again (since I'm obviously not a good welder) image #49.